

Serial No.: 10/598,198
Examiner: Vanli Gupta
Reply to Office Action Mailed December 30, 2008
Page 4 of 6

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. New claim 12 has been added. Support for the new claim can be found in, e.g., paragraph [0034] of the specification, among other places. Claims 1-12 are pending in the application.

Claim Rejections – 35 USC § 103

Claims 1-11 are rejected under 35 USC § 103(a) as being obvious over Kunii et al. (US 4,181,120) in view of Drinkwater et al. (US2004/0254470). Applicants respectfully traverse this rejection.

Claim 1 requires a window that comprises a resin portion having a property of letting ultrasound pass therethrough and a metal portion, wherein a part of the metal portion is embedded in an inside of the resin portion and another part is exposed to an outside of the resin portion. Claim 1 further requires that coupling of the window and a frame be implemented by coupling the part of the metal portion exposed to the outside of the resin portion with the frame. This arrangement helps couple more stably the frame and the window and thus prevents leakage of an acoustic propagation medium and suppresses the intrusion of bubbles. As a result, reliability of the ultrasonic probe has been effectively increased (see, e.g., paragraph [0009] of the specification, among other places).

Kunii et al. fail to teach or suggest a window that comprises a resin portion having a property of letting ultrasound pass therethrough and a metal portion, wherein a part of the metal portion is embedded in an inside of the resin portion and another part is exposed to an outside of the resin portion, as required by claim 1. Instead, Kunii et al. discuss a frame portion 23 that comprises an internal frame number 21 of a rigid reinforcing material such as a metal plate covered by an elastic film 22 (see Kunii et al., col. 3, lines 27-36, and Fig. 2). Kunii et al. further discuss a window portion 24 that is formed of the same material as the film 22 but is much thinner in cross-sectional dimension (see Kunii et al., col. 3, lines 27-36, and Fig. 2). In fact, as clearly discussed in Kunii et al., the window portion 24 is much thinner in cross-section and thus refers to

Serial No.: 10/598,198
Examiner: Vani Gupta
Reply to Office Action Mailed December 30, 2008
Page 5 of 6

the portion that does not include the internal frame 21. The internal frame 21 in Kunii et al. in fact merely forms a portion of the frame portion 23 to provide support to the elastic film 22 and the frame portion 23, while providing no teaching or suggestion of a function of coupling a window and a frame.

Nor do Drinkwater et al. teach or suggest that coupling of a window and a frame be implemented by coupling a part of a metal portion exposed to an outside of a resin portion with a frame, as required by claim 1. Instead, Drinkwater et al. merely discuss that first and second end pieces 16 and 18 are engaged with a coupling element 28 and the first end piece, the second end pieces and the coupling elements 28 together define a transducer cavity 30 (see Drinkwater et al., paragraph [0037] and Fig. 2). Drinkwater et al. are completely silent as to coupling of a window and a frame being implemented in the manner as required by claim 1. Accordingly, the present record provides no teaching or suggestion of a window that comprises a metal portion, wherein a part of the metal portion is exposed to an outside of a resin portion and coupled with a frame, much less any reason to expect that the advantages enjoyed by the present invention could be achieved.

For at least these reasons, claim 1 is patentable over Kunii et al. in view of Drinkwater et al. Claims 2-11 depend from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features of the rejected claims.

Serial No.: 10/598,198
Examiner: Vani Gupta
Reply to Office Action Mailed December 30, 2008
Page 6 of 6

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: March 24, 2009

By: 
Douglas P. Mueller
Reg. No. 30,300

DPM/cy